

Client's ref.: PWHQ-CA-0241-USXX  
Our's ref.: 0809-8811US-final /Alex Lin

## **TITLE**

### **COMPUTER HOUSING WITH RETRACTABLE DOOR PANEL**

#### **BACKGROUND OF THE INVENTION**

##### **Field of the Invention**

5           The present invention relates to a computer housing, and in particular to a computer housing provided with a retractable door panel.

##### **Description of the Related Art**

10           Peripherals of personal computer (PC) such as floppy drive, CD-ROM, hard disk, etc., are stored in a computer housing, so that these electronic devices can be protected from being damaged and collided by an external object or being polluted by outside dust. A front panel is provided and disposed on the front side of the  
15           computer housing, and several access ports are formed thereon so as to provide an access to the floppy drive, CD-ROM, hard disk or the like installed in the computer housing.

20           However, the structure of the front panel is easily spoiled by the access ports directly formed thereon, and these electronic devices accessible through the access ports are easily to be damaged or collided by the external object or polluted by outside dust. In general, a door panel is further provided on the front panel and  
25           used as a gate or a dustproof mask to cover the access ports on the front panel. Therefore, the electronic devices stored in the computer housing can be protected

by the door panel, and the completeness of the structure of the front panel can be persevered.

In Fig. 1, a conventional computer housing comprises a front panel 110 and provides an access port 118 thereon. The access port 118 provides an access to an electronic device such as a floppy drive, CD-ROM, hard disk or the like installed in the computer housing, and a pair of positioning holes 112 (only one is shown) are provided on the inner wall of the access port 118. A door panel 120 provided with a pivoting shaft 122 and a hook member 124 is used as a gate and a dustproof mask to cover the access port 118 of the front panel 110. The installation of the door panel 120 on the front panel 110 uses the pivoting shaft 122 of the door panel 120 respectively pivoting on the positioning holes 112 of the front panel 110.

Figs. 2A-2B show two sectional views of the computer housing incorporating the front panel 110 taken from line A-A in Fig. 1.

Door panel 120 can be rotated between a first position (Fig. 2A) where the access port 118 is covered and a second position (Fig. 2B) where the access port 118 is uncovered. In Fig. 2A, the access port 118 is covered by the door panel 120 and the hook member 124 of the door panel 120 are positioned and pressed against the inner surface of the front panel 110. As the hook members 124 of the door panel 120 are forced out of the front panel 110 by rotating the door panel 120 to a horizontal position as shown in Fig. 2B, the access port 118 is

fully uncovered and the electronic device therein can be freely accessed.

In U.S. Patent No. 6,219,226, Bullington et al. disclose a computer chassis with a chassis door which can be retracted into the interior of the computer chassis to uncover the access port in the front panel of the computer chassis and the internal components of the computer can be accessed through the access port. Tabs and hinges are provided on the chassis door, so that the chassis door can be rotated and can be guided into the inner computer chassis by moving along the rails, i.e., the chassis door can be switched between an open and a closed position. When the chassis door is open, the door is located within the housing, exposing the internal component to the access port; when the chassis door is closed, the door covers the access port to prevent access to the electronic devices installed in the computer housing.

However, the structure of the chassis door becomes more complicated with the addition of tabs and hinges, which is prone to create obstruction when the chassis door moves from one position to the other.

Hence, there is a need for a more compact and inexpensive computer housing to avoid the abovementioned problems.

#### **SUMMARY OF THE INVENTION**

Accordingly, an object of the invention is to provide a more compact and inexpensive computer housing. The computer housing comprises a front panel, a receiving

chamber, a door panel, and a main body provided with an inner space. An electronic device such as a floppy drive, CD-ROM, hard disk or the like can be disposed in or removed from the inner space of the main body. The front panel has at least one access port for access to the electronic device, and the receiving chamber is located within the inner space of the main body and is connected to the access port. The door panel is engaged with the front panel and is allowed to move between a first position covering the access port and a second position being retracted into the receiving chamber to expose the electronic device.

Another object of the invention is to provide a computer housing that can avoid the interference caused by the door panel moving into or out of the interior of the computer housing through the access port.

Still another object of the invention is to provide a computer housing for receiving at least one electronic device therein. The housing structure comprises a front panel, a receiving chamber, a door panel, and a main body with inner space. The front panel has at least one access port for access to the electronic device, and the receiving chamber is located within the inner space of the main body and is connected to the opening. The door panel has a semi-cylindrical portion engaged with the front panel and is allowed to move between a first position covering the access port and a second position being retracted in the receiving chamber so as to expose the electronic device.

Still another object of the invention is to provide a computer housing for receiving at least one electronic device therein. The computer housing comprises a front panel, a receiving chamber, a door panel, and a main body with inner space. The front panel has at least one access port for access to the electronic device, and the receiving chamber is located within the inner space of the main body and is connected to the access port. The door panel is engaged with the front panel and is allowed to move between a first position covering the access port and a second position being retracted in the receiving chamber to expose the electronic device. The first position is substantially perpendicular to the second position. A guiding device is disposed in the receiving chamber for guiding the door panel when the door panel is retracted into the receiving chamber.

A detailed description is given in the following embodiments with reference to the accompanying drawings.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

The present invention can be more fully understood by reading the subsequent detailed description and examples with references made to the accompanying drawings, wherein:

Fig. 1 is a perspective view of a front panel of a conventional computer housing (110);

Fig. 2A-2B are two sectional views of the computer housing incorporating a front panel (110) taken along the line (A-A) in Fig. 1, wherein the door panel (120) in

Fig. 2A is closed, and the door panel (120) in Fig. 2B is open;

Fig. 3A is a perspective view of a computer housing (1) according to the present invention;

5 Fig. 3B is an enlarged perspective view of a door panel (20) shown in Fig. 3A;

Fig. 3C is a perspective view of a guiding device (27) provided in the computer housing (1) in Fig. 3A; and

10 Fig. 4A-4C are three sectional views of the computer housing (1) taken along the plane (B-B) in Fig. 3A, wherein the door panel (20) in Fig. 4A is closed, the door panel (20) in Fig. 4B is partially open, and the door panel (20) in Fig. 4C is open.

#### DETAILED DESCRIPTION OF THE INVENTION

15 Referring to Fig. 3A and 3B, a computer housing has a front panel 10, a receiving chamber 12, a door panel 20 and a main body 30 (dotted line) with an inner space 11, which is labeled and indicated in Fig. 4. An electronic device (not shown but is implicitly indicated by the  
20 reference numeral 3) such as floppy, CD-ROM, hard disk or the like can be placed into or removed from the inner space 11 of the main body 30.

25 In Fig. 3A, the front panel 10 is rectangular and mounted on a leading end of the main body 30. The receiving chamber 12 is located within the inner space 11 of the main body 30 and corresponds to one access port 18, and a pair of spaced positioning portions 26 (only one shown in this figure) are set in the receiving chamber 12. In the preferred embodiment, the access port

18 is a rectangular opening through which the electronic device can be properly accessed from the main body 30. The access port 18 is covered by a door panel 20, which is detachably connected to the front panel 10.

5 In Fig. 3B, the rectangular door panel 20 is substantially formed by two opposite L-shaped ends, each of which is provided with a semi-cylindrical portion 22 and a hooked protrusion 24. The semi-cylindrical portion 22 of the door panel 20 is detachably engaged to the  
10 positioning portion 26 of the front panel 10, so that the access port 18 can be covered or uncovered by the door panel 20.

Referring to Fig. 3C, a guiding device 27 comprising two spaced tracks 28 is disposed within the receiving  
15 chamber 12. The guiding device 27 functions as a rail to guide the door panel 20 into or out of the receiving chamber 12. That is to say, when the door panel 20 is moved into first position I-I, the access port 18 is covered by the door panel 20; when the door panel 20 is  
20 moved to the second position II-II, the door panel 20 is retracted into the receiving chamber 12 and the electronic device is exposed through the access port 18.

Figs. 4A-4C are three sectional views of the computer housing 1 taken along the plane B-B in Fig. 3A.  
25 The access port 18 of the front panel 10 in Fig. 3A is covered (first position I-I), and the access port 18 of the front panel 10 in Fig. 3B is partially open, and the access port 18 of the front panel 10 in Fig. 3C is uncovered (second position II-II) such that the  
30 electronic device is exposed. The door panel 20 is

always next to and contacts the positioning portions 26 of the front panel 10 when the door panel 20 moves from the first position I-I to the second position II-II, and vice versa.

5 In Fig. 4A, the protrusions 24 of the door panel 20 abut the front panel 10 when the door panel 20 is in the first position I-I, so that the door panel 20 can be properly positioned. In Fig. 4C, the protrusions 24 of the door panel 20 abut the positioning portions 26 of the front panel 10 when the door panel 20 is actually moved to the second position II-II, i.e., the protrusions 24 act as a stopper to properly locate the door panel 20 in a predetermined position. Comparing between Fig. 4A and Fig. 4B, the first position I-I is substantially perpendicular to the second position II-II.

10 As the door panel 20 is retracted into the receiving chamber 12, the electronic device 3 can be easily placed into or moved out of the computer housing 1 without the interference caused by the door panel 20.

20 When this invention has been described in connection with what are presently considered to be the most practical and preferred embodiments, it is to be understood that the invention is not limited to the disclosed embodiments, but, on the contrary, is intended to cover various modifications and equivalent arrangements included within the spirit and scope of the appended claims.